

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Shixin Chen et al.
Serial No. :
Filed : February 15, 2002
Title : SLIDER ASSEMBLIES

Art Unit : Unknown
Examiner : Unknown

BOX PATENT APPLICATION

Commissioner for Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Prior to examination, please amend preliminarily the above-captioned application as follows:

In the claims:

Amend claim 3, 4, 9, 10, 11, 12, 15, 16, 17, 18, 19, 21, 22, 23, 24, and 25 as follows:

3. (Amended) A slider assembly according to claim 1, wherein the piezoelectric element is mounted on a trailing end of the slider main body.

4. (Amended) A slider assembly according to claim 1, wherein the piezoelectric element is connected at one end to the slider main body, the remainder of the element being suspended from the slider main body.

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9. (Amended) A slider assembly according to claim 1, wherein the piezoelectric element is generally "S" shaped.

10. (Amended) A slider assembly according to claim 1, wherein the piezoelectric element is generally "C" shaped.

11. (Amended) A slider assembly according to claim 1, wherein the piezoelectric element is generally spiral.

12. Amended A slider assembly according to claim 1, wherein the slider main body is provided with a notch, said element being located within said notch.

15. (Amended) A slider assembly according to claim 1, wherein the head is a read/write head operable to read data from the data storage medium and write data to the data storage medium, said head comprising a read/write transducer.

16. (Amended) A slider assembly according to claim 1, wherein the head is a read/write head operable to read data from the data storage medium and write data to the data storage medium, said head comprising a read transducer and a write transducer.

17. (Amended) A slider assembly according to claim 1, wherein the element comprises integrated interconnects for carrying signals to and/or from the head as required.

18. (Amended) A slider assembly according to claim 1, wherein the head comprises either a read head operable to read data from the data storage medium or a write head operable to write data to the data storage medium.

19. (Amended) An actuator for a data storage device, the actuator comprising:
a slider assembly according to claim 1;
an arm connected at one end to the slider assembly; and

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a motor operable to rotate the arm about a pivot point to move the slider assembly back and forth over a data storage medium;

wherein the motor is operable to adjust the position of the head with respect to the data storage medium by rotating the arm, and the piezoelectric element of the slider assembly is operable to adjust the position of the head with respect to the data storage medium.

21. (Amended) An actuator according to claim 19, wherein the motor comprises a voice coil motor.

22. (Amended) An actuator according to claim 19, wherein the servo bandwidth of the actuator is greater than 1.5 kHz.

23. (Amended) An actuator according to claim 19, wherein the servo bandwidth of the actuator is greater than or equal to 5 kHz.

24. (Amended) An actuator according to claim 19, wherein the arm is connected to the slider assembly by way of a flexure which functions to reduce shock and/or vibration transmission through the arm to the head and vice versa.

25. (Amended) A hard disk data storage device comprising:
a platter carrying a magnetic data storage medium;
an actuator according to any of claims 19 to 23,
a first control circuit operable to control the motor;
a second control circuit operable to control the piezoelectric element; and
an input/output interface for input of signals to and output of signals from the hard disk data storage device.

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REMARKS

Applicants have amended a number of original claims to remove impermissible multiple dependency under 35 USC 112, 5.

Attached is a marked-up version of the changes being made by the current amendment.

Applicant asks that all claims be examined. Please apply any other charges to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 2-15-02

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Version with markings to show changes made

In the claims:

Claims 3, 4, 10, 11, 12, 15, 16, 17, 18, 19, 21, 22, 23, 24, and 25 have been amended as follows:

3. (Amended) A slider assembly according to [any preceding] claim 1, wherein the piezoelectric element is mounted on a trailing end of the slider main body.

4. (Amended) A slider assembly according to [any preceding] claim 1, wherein the piezoelectric element is connected at one end to the slider main body, the remainder of the element being suspended from the slider main body.

10. (Amended) A slider assembly according to [any of claims 1 to 8] claim 1, wherein the piezoelectric element is generally "C" shaped.

9. (Amended) A slider assembly according to [any preceding] claim 1, wherein the piezoelectric element is generally "S" shaped.

11. (Amended) A slider assembly according to [any of claims 1 to 8] claim 1, wherein the piezoelectric element is generally spiral.

12. Amended A slider assembly according to [any preceding claim] claim 1, wherein the slider main body is provided with a notch, said element being located within said notch.

15. (Amended) A slider assembly according to [any preceding claim] claim 1, wherein the head is a read/write head operable to read data from the data storage medium and write data to the data storage medium, said head comprising a read/write transducer.

16. (Amended) A slider assembly according to [any of claims 1 to 14] claim 1, wherein the head is a read/write head operable to read data from the data storage medium and write data to the data storage medium, said head comprising a read transducer and a write transducer.

17. (Amended) A slider assembly according to [any preceding claim] claim 1, wherein the element comprises integrated interconnects for carrying signals to and/or from the head as required.

18. (Amended) A slider assembly according to [any of Claims 1 to 14] claim 1, wherein the head comprises either a read head operable to read data from the data storage medium or a write head operable to write data to the data storage medium[.].

19. (Amended) An actuator for a data storage device, the actuator comprising:
a slider assembly according to [any preceding claim] claim 1;
an arm connected at one end to the slider assembly; and
a motor operable to rotate the arm about a pivot point to move the slider assembly back and forth over a data storage medium;

wherein the motor is operable to adjust the position of the head with respect to the data storage medium by rotating the arm, and the piezoelectric element of the slider assembly is operable to adjust the position of the head with respect to the data storage medium.

21. (Amended) An actuator according to claim 19[or 20], wherein the motor comprises a voice coil motor.

22. (Amended) An actuator according to [any of claims 19 to 21] claim 19, wherein the servo bandwidth of the actuator is greater than 1.5 kHz.

23. (Amended) An actuator according to [any of claims 19 to 22] claim 19, wherein the servo bandwidth of the actuator is greater than or equal to 5 kHz.

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24. (Amended) An actuator according to [any of claims 19 to 23 where] claim 19,
wherein the arm is connected to the slider assembly by way of a flexure which functions to
reduce shock and/or vibration transmission through the arm to the head and vice versa.

25. (Amended) A hard disk data storage device comprising:
a platter carrying a magnetic data storage medium;
an actuator according to any of claims 19 to 23 [when dependent upon any of claims 1 to
17],
a first control circuit operable to control the motor;
a second control circuit operable to control the piezoelectric element; and
an input/output interface for input of signals to and output of signals from the hard disk
data storage device.

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